Budget Justification

A. Personnel (0% Federal; 100% Match)

The following is a listing a key personnel or categories with the estimated cost for the overall project in each category:

Title	Effort	Amount Requested/Matched
Principal Investigator/Advisor	25%	$188,750
CURI Advisor	10%	$60,075
PSA VP Oversight	10%	$121,365
Facility Director	100%	$685,000
Administrative Specialist	20%	$49,995
Project Controller (50% 3yrs 25% 2yrs)		$292,899
Fiscal Technician	50%	$88,645
Business Development	20%	$106,000
Technical Sales Engineer	100%	$210,000
Test Engineer (2)	100%	$700,000
Operators (2)	100%	$390,000
Systems Engineer	100%	$225,000
Maintenance Technician (2)	100%	$420,000
Project Manager	100%	$393,000
Safety Manager	100%	$195,000
Summer Interns	100%	$60,000

B. Fringe Benefits (0% Federal; 100% Match)

Fringe benefits are calculated at the currently approved rates as negotiated with DHHS as part of Clemson University's F&A Rate Cost Agreement. Fringe benefit rates are negotiated annually and are subject to change. Approved rates for each year will be charged to the project. Current rates include 28.5% for 9-month employees and 34.3% for 12-month and temporary grant employees. Graduate and undergraduate students currently have a fringe rate of 5.1%.

C. Travel (0% Federal; 100% Match)

Travel will be required for multiple purposes to fulfill the needs of this project. Funding is requested for 2 one-week trips to Germany for 2 people for coordination of the design and installation of the drivetrain testing equipment with the vendor, Renk Labeco. Travel is requested for quarterly meetings to include engineering and construction planning meetings as well as any sponsor required meetings. Trips are planned for 6 people in years 1 and 2 and 4 people in years 3 -5, estimated to require 2 days per trip. Travel to Charleston is requested for planning meetings and installation consultation throughout the project. Trips to Charleston are estimated at an average of 3 days per trip and approximately 74 trips are proposed over the life

of the project. Travel will be required to recruit for positions to be funded under this project. These recruiting trips are spread over the second half of year 2 and all of year 3 and will be an average of 2 days with 22 trips estimated over this time frame. Trips are also requested to visit client facilities to market the capabilities of the testing facility to potential clients and for planning and facilitation of facility use. These trips will require on average 2 days and will begin as early as the last quarter of year 1 but will be heavily focused on the later years of the project.

D. Equipment (71.4% Federal; 28.6% Match)

Details of the 15MW Wind Turbine and components test stand are included in the attached quote from Renk Labeco. Renk is contributing to the match for this project with a $10M discount on equipment for the facility. Transportation costs for shipping the wind turbine testing equipment and components to the testing facility from the vendor are also included in the equipment category. A third 7.5 MW test turbine will be added in year 3 for expansion of testing capability. Data acquisition equipment will also be purchased to gather data during testing cycles and deliver via secure networks to clients and the control room at the testing facility for analysis.

E. Supplies (0% Federal; 100% Match)

The supplies budget for this project includes administrative and janitorial supplies necessary for the business functions of this project and client consumables necessary for use during testing.

F. Contractual – (100% Federal; 0% Match) Savannah River National Lab (SRNL) is partnering with Clemson University to provide direct technical assistance in the design specification, integration, configuration and deployment of a high fidelity, custom Data Acquisition System for the Wind Turbine Drivetrain Test Facility. SRNL will be funded directly from DOE as a DOE National Laboratory upon award of the proposal. A field work proposal and authorization letter for SRNL are included in the appropriate sections of the proposal.

G. Construction(33% Federal; 67% Match)

Construction estimates were developed by the engineers of Flour Enterprises, Inc. The detailed estimate for modifications to Building 69, the wind turbine drivetrain testing facility, is attached as an appendix to the budget narrative. A separate estimate for the internal electrical infrastructure of the facility is attached as well.

H. Other (0% Federal; 100% Match)

The Other category consists of a variety of costs and contributions for this project. Contributions captured in this category include the fair market value of Dry Dock 3 ($1,500,000), located on the Cooper river and adjacent to the facility, with rail road access directly to the

loading dock of the facility. Building 69 is the main facility for this project and will house the testing equipment and control room and a portion of the office space. The building and 6.3 acres of land accompanying it, are valued at $5,241,000, and will be made available to Clemson University should the project be funded, by the State Port Authority. The SC Rail Road Association will be extending the rail spur of the track that runs along Building 69 to Dry Dock 3 for pickup from barges carrying equipment to be tested and will also extend the spur to the loading dock of Building 69 where overhead cranes will pick up the equipment from the rail car and carry into the facility for setup and testing. The value of this extension is estimated at $366,551 per the attached quote from Genesis Consulting Group. Building 1824 is adjacent to Building 69 and will be used as an educational facility to study the components of the wind turbine drive trains and conduct research on the improvement of these components. The building and 4.8 acres of land accompanying are valued at $4,995,000 and will be made available to Clemson University should the project be awarded, by the State Port Authority. Office Space for CU WTDTF staff is also available at the Clemson University Restoration Institute, located 1.1 miles from the facility and are valued at $167,580 over the life of the project at a market value estimate of $19 per square foot. In addition to these contributions, match funding will also provide for the following categories of cost: marketing and sales, AAB and IAB annual meeting scholarships for students, utilities of the general facility, general and liability insurance, maintenance supplies and major maintenance to capital items or other capital improvements. The pro forma budget details the costing of the individual categories of cost mentioned here.

I. Total Direct Costs (48% Federal; 52% Match)

J. Indirect Charges (0% Federal; 100% Match)

Indirect or F&A costs are calculated as unrecovered indirect costs on funds contributed to the direct costs of this project by Clemson University. The F&A Rate Agreement for Clemson University is negotiated by DHHS. The contact on the agreement is Steven Zuraf (202)401-2808. The university contact for indirect rate negotiation with DHHS is currently Amy Madden (864)656-1122. The on-campus research rate of 48.5% was used to calculate the match for this grant.

K. Program Income

Program income for this project will be generated based on billing rates established in accordance with Clemson University policies and procedures. Program income Is estimated on the pro forma budget in years 4 and 5 and will be used to offset expenses in the year earned. Income not required will be placed into cash reserves for future funding needs of the facility.

L. Cost Share Commitments

Cost share will be met for this project through a variety of sources and types of cost share. The table below indicates the (1) name of the organization; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and (4) the proposed type of cost share – cash, services, or property.

Name of Organization	Amount Provided	% of Total Project	Type of Cost Share
Charleston Naval Redevelopment Authority	$6,000,000	6.07%	Cash
Clemson University	$6,205,000	6.27%	Cash
Clemson University	$4,677,005	4.73%	Property, Office Space & Unrecovered F&A
James Meadors	$25,000	<.1%	Cash
RENK	$10,000,000	10.12%	Discount on Equipment
SC Department of Commerce	$3,000,000	3.03%	Cash
SC Public Railway	$366,551	.37%	Services
SCE&G	$3,000,000	3.03%	Cash
State of South Carolina	$7,000,000	7.08%	Cash
State Port Authority	$10,236,000	10.36%	Property
Tony Bakker	$500,000	0.5%	Cash

RENK LABECO Test Systems CORPORATION
156 East Harrison Street,
Mooresville, Indiana 46158-1625

Phone: 317-831-2990
Watts: 800-878-2990
Facsimile: 317-831-2978
Email: mail@labeco.com

Quotation-no. 29 000 110-1

Clemson University

Truxton Avenue
North Charlston, SC
USA

Our reference	Your contact	Phone	Telefax	E-Mail	Date
RL-JC	Eric Floyd	(+1) 317-831-2990	(+1) 317-831-2978	mail@labeco.com	12.August.2009

Clemson University Wind Turbine Testing Facility
RENK/LABECO-Quotation-No. 29 000 110-1

Dear Sirs,

thank you for your interest in our technology, we are pleased to submit our quotation as follows:

1. 15 MW Wind Turbine and components Test Stand

For the calculation of prices for start up and acceptance testing at the customer site, it is our understanding that the work involved can be carried out smoothly and without any unforeseen interruptions. Work can be performed by RENK as a not union organized company.
If the relevant work should be interrupted and is not related to a fault of RENK/LABECO, or if unionized personal is required, we reserve the right to charge the corresponding waiting period and/or additional travel expenses to customer at cost.

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Quotation-no. 29 000 110-1

2. Pricing

2. 1 **Total price for the 15 MW test system**, containing one 7.5 MW motor and drive, one 15 MW@10 rpm gear box, a RDDS control and data acquisition system. Installed to a customer built base slab, and commissioned at site in Charleston

US$ 11,800,000

2. 2 **Total price for the dynamic rotor blade force load simulation**, containing hydraulic cylinder load application, servo valve operated, served by a hydraulic power plant located next to the test stand. RDDS control and data acquisition system. installed to a customer built base slab, and commissioned at site in Charleston.

US$ 16,700,000

2. 3 **Total price for the support structure to above mentioned Components**, containing frame work and support structure for the test stand. Installed at site in Charleston to a customer built base slab,. Specimen support frames and adapting parts are not included.

US$ 2,200,000

2. 4 **Total price for the 7.5 MW test system**, containing one 7.5 MW motor and drives, one 7.5 MW@12rpm gear box, a RDDS control and data acquisition system. installed to a customer built base slab, and commissioned at site in Charleston

US$ 10,600,000

2. 5 **Total price for the climatic chamber**, containing a modularly built chamber for temporary set up, 100kW cooling capacity -20°C max. low temp. at no heat load for cold start testing, +50°C max. high temp, heat generated by gas burner. Ventilation motors and drives and mixer chamber, a control system. installed to a customer built duct system, and commissioned at site in Charleston

US$ 2,600,000

2. 6 **Total price for sound separation system**, containing one sound cover for the 7.5 MW test stand gearbox and motor and one sound absorbing wall (barrier), approx. 20m x 15m between the test stand and specimen for the 15 MW test stand. Wall side sound absorbing panels in test room to be installed by customer

US$ 700,000

US$ 44,600,000

Educational discount to Clemson University **US$ 10,000,000**

Final Total System Price **US$ 34,600,000**

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2.5 Options

Option 1	7.5 MW Motor and drive for power boost to 15MW	**US$**	**4,300,000**
Option 2	Grid simulation	**US$**	**TBD**
Option 3	Transformer and power distribution panel	**US$**	**TBD**
Option 4	Cooling tower, and piping 3MW capacity **Price estimate**	**US$**	**370,000**
Option 5	Calibration equipment for torque measurement	**US$**	**TBD**
Option 6	Acoustic absorption panels for test room	**US$**	**TBD**
Option 7	Ventilation of test rooms, air conditioning of electrical and control room	**US$**	**TBD**
Option 8	Civil engineering and construction of Base slab and foundation.	**US$**	**TBD**
Option 9	Crane with a gross capacity of 300t	**US$**	**TBD**
Option 10	Vibration analyzer, Power electric analyzer **Price estimate**	**US$**	**350,000**
Option 11	Packaging, shipping, moving in **Price estimate**	**US$**	**380,000**
Option 12	3rd Party certification of test stand (e.g. Germanischer Lloyd, Tüv, UL) **Price estimate**	**US$**	**400,000**

2. 3 Pricing, General

The above prices are firm prices. Imported components are based on a exchange rate of $1.42 / €1.00, in case exchange rate shift more then 1% in any direction prices will be adjusted. Prices do not include any state or sales or import tax.

2. 4 Delivery terms

RENK LABECO Test Systems CORPORATION
156 East Harrison Street,
Mooresville, Indiana 46158-1625

Phone: 317-831-2990
Watts: 800-878-2990
Facsimile: 317-831-2978
Email: mail@labeco.com

Ex Works, Renk Labeco Test Systems Corp., Mooresville, IN,USA
Major components might be shipped in from international manufacturers, this shipping and packaging will be charged as per actual.

3. Delivery time

The delivery period will be approx.18 months, ex work Renk Labeco or its major suppliers, after receipt of your technically and commercially clear order and advance payment. Assembly, commissioning and start up will take about 6 to 9 additional month.

4. Payment terms

20% after close of contract

30% after critical design review (approx. 6 month after contract date)

20% 14 month after contract date (approx. 50% of construction is completed)

20% at shipment

10% after final acceptance test at customers site, not to exceed 360 days after receipt, if installation and/or final acceptance test is delayed for reasons beyond RENK/LABECO's responsibility.

Net without any deductions, payable within 30 days after date of invoice.

5. Warranty for new supplied parts

For 12 months from the date of acceptance, or 24 months from shipment if commissioning of the test stand is delayed for reasons beyond RENK/LABECO's responsibility, RENK/LABECO warrants the equipment to be free from defects in material, workmanship and title. This limited warranty is conditioned upon the equipment being properly cared for and operated under normal conditions and competent supervision. In addition, the warranty is conditional upon the equipment not being modified or altered in any manner.

The software is warranted to conform to RENK/LABECO's published functional specifications. If any persons other than RENK/LABECO alter the software, the warranty is terminated from the date of such alteration.

Warranty for reused or modified parts and components is excluded.

6. Protective remarks

Copying of any documents submitted, their disclosure, utilization and communication of the contents thereof are forbidden unless explicitly authorized in writing. All rights are reserved in the event of the granting of a patent or registration of a model or design.

All software developed by RENK/LABECO remains the property of RENK/LABECO and is subject to a Licensee Agreement. Any software supplied by RENK/LABECO or developed on its behalf may only be used for such systems or parts thereof

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Email: mail@labeco.com

delivered by RENK/LABECO and for which the software is intended according to the definition of the purchase order. Any other use or disclosure to third parties in whole or in part is not allowed.

For commercial software programs included in RENK/LABECO's scope of supply, the conditions of the relevant user licenses are valid.

7. Limitation of Liability

The parties expressly agree that under no circumstances shall RENK/LABECO be liable to the purchaser for any special, indirect, incidental or consequential damages as a result of any breach under this contract. In addition, the parties expressly agree that RENK/LABECO's total liability to the purchaser whether in contract, in tort, under any warranty or otherwise arising out of the transaction, shall not exceed the price of the product or part on which such liability is based.

The purchaser expressly agrees to indemnify and save harmless RENK/LABECO, its agents, employees, or representatives from and against all loss or expense (including costs and attorney's fees) incurred by reason of liability imposed by law for damages incurred for bodily injury and property damage, including loss of use thereof, arising out of or in consequence of the contract between the parties.

8. Conditions of contract

The remaining contractual conditions are in conformity with our "Standard Terms and Conditions of Sale of RENK/LABECO".

If any of the words or provisions of this contract shall be deemed to be invalid for any reason then this contract shall be read as if the invalid provisions had to that extent been deleted there from and the validity of the remaining provisions of this contract shall not be affected thereby.

9. Validity of the quotation

This quotation is valid for 90 days.

Should you have any questions please do not hesitate to contact us. We hope our quotation meets your requirements and are looking forward to receiving your order.

Yours faithfully,

RENK LABRCO Test system CORPORATION

Mathias Karrer
Board Member

Jörg Cordes
President

EcoEnergy

EcoEnergy Construction
2511 Technology Drive, Suite 110
Elgin, IL 60124
Phone : 815-266-4246
Fax : 815-266-8946

August 12, 2009

Clemson University
Truxton Avenue
North Charleston, SC
USA

Re: Clemson University Wind Turbine Drivetrain Testing Facility
DE-FOA-0000112
Test Line Power Wiring Proposal

Dear Sirs,

We propose to furnish engineering services, field labor, material, tools and other necessary items to complete the electrical work associated with wiring Drivetrain Testing Lines 1 and 2. Please note the following with regard to our proposal:

1) Pricing is based on wiring for two test lines; one test line capable of testing up to a 7.5MW turbine and a second test line capable of testing up to 7.5MW with an option for an additional at 7.5MW.
2) Pricing is based on a 25MW, 5kV service entrance furnished and installed under Fluor's scope of work. Fluor's service entrance shall include 5kV service equipment with a draw out style main circuit breaker and up to three draw out style branch circuit breakers including a complete protective relaying package by Schweitzer Engineering Laboratories [Reference EcoEnergy's one-line diagram (Sheet E1.0)].
3) Pricing is based on wiring to the equipment in each test line as shown on EcoEnergy's one-line diagram. Test line equipment furnished and set in place by Renk test systems.
4) Pricing in this proposal is limited specifically to the two test lines. For example, electrical work associated with the building's general power and lighting systems, including power and control to the gantry cranes is not included.
5) Pricing for this proposal is based on non-union field labor. If prevailing wages (union scale) are required, EcoEnergy reserves the right to additional compensation equal to the difference in the cost of labor.
6) Pricing includes electrical engineering to develop a code (National Electrical Code) compliant design using nationally recognized standards and practices that achieves the intended purpose of the system.
7) Pricing does not include programming of testing devices and equipment that control equipment installed under our scope of work.
8) A grid fault simulator is not included in our base scope of work. Please reference our voluntary alternate below for the added cost of furnishing and installing this device.
9) Please reference the attachment to this proposal for a labor and material cost breakdown.

Our lump sum proposal for the above defined scope of work is $2,987,778.16. Based on the two year schedule, we anticipate costs of $1,045,722.00 for the first year and $1,954,056.16 the second year.

Voluntary Alternate
Design, furnish and install a grid fault system consisting of load banks, vaccum bottle circuit breakers, keyed interlock and switches for various fault scenarios. **Add → $1,961,400.00**

Thank you for the opportunity to quote this work. If you have questions regarding our proposal, please contact our office.

Sincerely,

EcoEnergy Construction

Ed Englert

Ed Englert
Project Manager

Enc.

Note 1: Power converter recycles the power output from the unit under test, back to the DC bus. It also provides AC to the grid simulation bus and modulates the inverter to simulate grid disturbances.

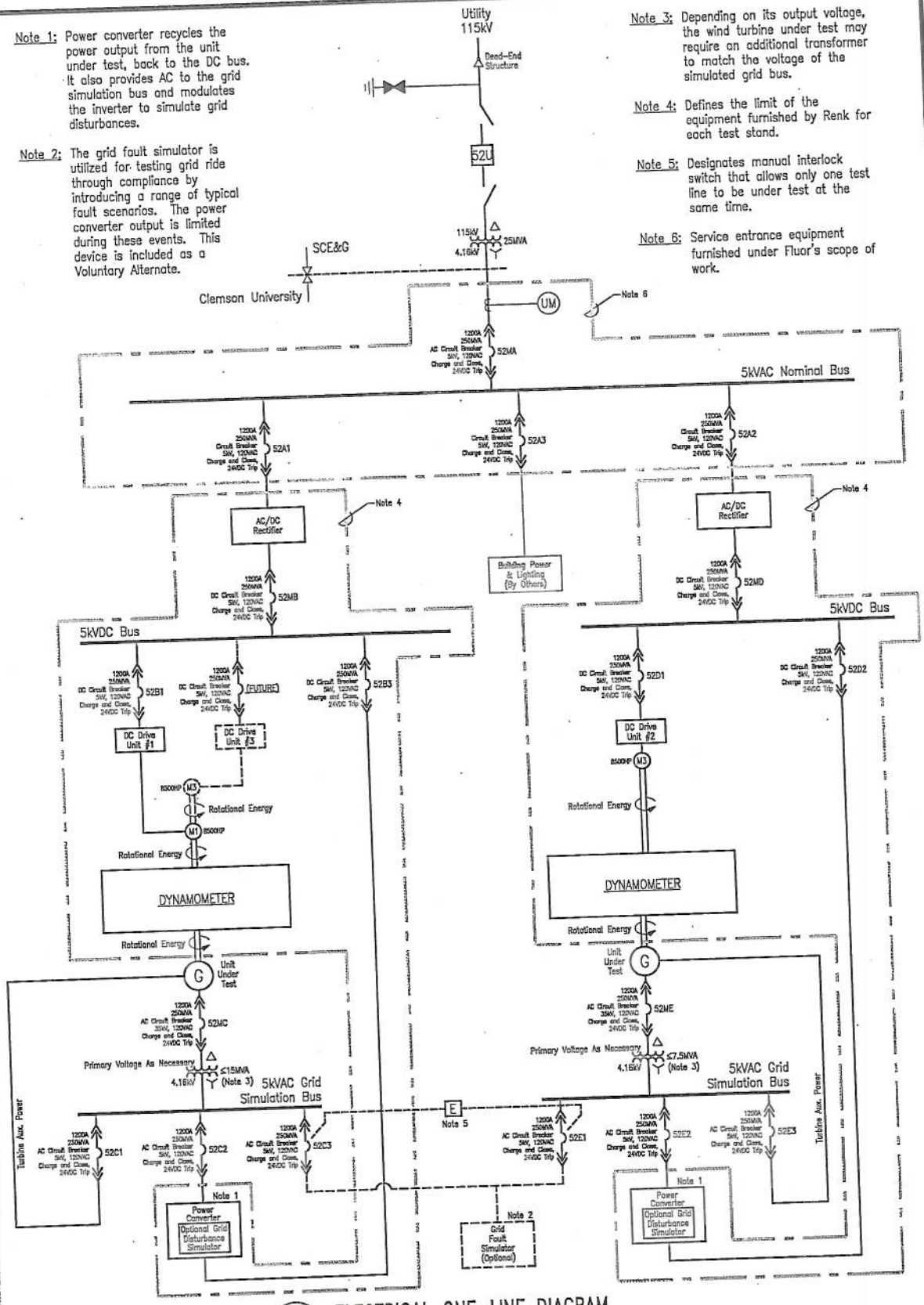
Note 2: The grid fault simulator is utilized for testing grid ride through compliance by introducing a range of typical fault scenarios. The power converter output is limited during these events. This device is included as a Voluntary Alternate.

Note 3: Depending on its output voltage, the wind turbine under test may require an additional transformer to match the voltage of the simulated grid bus.

Note 4: Defines the limit of the equipment furnished by Renk for each test stand.

Note 5: Designates manual interlock switch that allows only one test line to be under test at the same time.

Note 6: Service entrance equipment furnished under Fluor's scope of work.



E 1.1 ELECTRICAL ONE-LINE DIAGRAM

Scale: None

REV.	REVISION CHANGE(S)	DATE

CAD File: (.dwg): One-Line.dwg

Sheet: E1.0 | Status: Conceptual | Job No: | Scale: As Noted | Date: 05-Aug-2009 | Designed By: | Checked By: SJG

2511 Technology Drive, Suite 110
Elgin, IL 60124 (815) 266-4201

EcoEnergy ENGINEERING

Wind Turbine Drivetrain Testing Facility for:

Clemson University

Charleston, South Carolina

Labor and Material Breakdown

of the

Estimate for the Clemson University

Wind Turbine Drivetrain Test Facility

EcoEnergy Construction

Clemson University

Wind Turbine Drivetrain Testing Facility

Material	Quantity	M Price	U	Material ($)	Labor	U	Labor (Hrs)	Labor Rate	Labor ($)	Total Cost ($)
CONDUIT										
2" GRC (GALV)	600	$ 262.06	C	$ 1,572.36	10.80	C	64.80	$ 73.35	$ 4,753.08	$ 6,325.44
4" GRC (GALV)	17,410	$ 806.11	C	$ 140,343.75	23.40	C	4,073.94	$ 73.35	$ 298,823.50	$ 439,167.25
2" GRC COUPLING	12	$ 317.99	C	$ 38.16	0.00	C	0.00	$ 73.35	$ -	$ 38.16
4" GRC COUPLING	306	$ 1,373.19	C	$ 4,201.96	0.00	C	0.00	$ 73.35	$ -	$ 4,201.96
2" GRC 90 ELBOW	12	$ 1,278.54	C	$ 153.42	60.00	C	7.20	$ 73.35	$ 528.12	$ 681.54
4" GRC 90 ELBOW	306	$ 5,923.19	C	$ 18,124.96	186.00	C	569.16	$ 73.35	$ 41,747.89	$ 59,872.85
2" STEEL LOCKNUT	16	$ 51.11	C	$ 8.18	6.00	C	0.96	$ 73.35	$ 70.42	$ 78.60
4" STEEL LOCKNUT	408	$ 359.35	C	$ 1,466.15	15.00	C	61.20	$ 73.35	$ 4,489.02	$ 5,955.17
2" PLASTIC BUSHING	8	$ 75.22	C	$ 6.02	5.00	C	0.40	$ 73.35	$ 29.34	$ 35.36
4" PLASTIC BUSHING	204	$ 268.38	C	$ 547.50	9.00	C	18.36	$ 73.35	$ 1,346.71	$ 1,894.21
2" GRC CUT&THREAD	16	$ -	C	$ -	54.00	C	8.64	$ 73.35	$ 633.74	$ 633.74
4" GRC CUT&THREAD	408	$ -	C	$ -	110.00	C	448.80	$ 73.35	$ 32,919.48	$ 32,919.48
30x30x10" SCREW CVR BOX NEMA1	9	$ 276.22	E	$ 2,485.98	2.50	E	22.50	$ 73.35	$ 1,650.38	$ 4,136.36
24" LADDER TRAY	540	$ 16.43	E	$ 8,872.20	14.50	C	78.30	$ 73.35	$ 5,743.31	$ 14,615.51
24" LADDER HORZ TEE SECT	10	$ 68.00	E	$ 680.00	2.50	E	25.00	$ 73.35	$ 1,833.75	$ 2,513.75
24" LADDER VERT 90 OUTSIDE	2	$ 68.00	E	$ 136.00	2.00	E	4.00	$ 73.35	$ 293.40	$ 429.40
36" LADDER TRAY	460	$ 27.29	E	$ 12,553.40	18.00	C	82.80	$ 73.35	$ 6,073.38	$ 18,626.78
36" LADDER HORZ TEE SECT	10	$ 83.00	E	$ 830.00	3.00	E	30.00	$ 73.35	$ 2,200.50	$ 3,030.50
1/4-20x1" BOLT (PLATED)	76	$ 4.19	C	$ 3.18	2.00	C	1.52	$ 73.35	$ 111.49	$ 114.67
3/8-16x1-1/2" BOLT (PLATED)	1,741	$ 11.87	C	$ 206.66	3.00	C	52.23	$ 73.35	$ 3,831.07	$ 4,037.73
1/4" FLAT WASHER (PLT)	76	$ 5.00	C	$ 3.80	1.00	C	0.76	$ 73.35	$ 55.75	$ 59.55
3/8" FLAT WASHER (PLT)	1,741	$ 5.00	C	$ 87.05	1.00	C	17.41	$ 73.35	$ 1,277.02	$ 1,364.07
										$ 600,732.06
WIRE										
#3/0 THHN	2,880	$ 2,060.43	M	$ 5,934.04	18.90	M	54.43	$ 73.35	$ 3,992.44	$ 9,926.48
#16/4 SJ CORD	540	$ 778.30	M	$ 420.28	28.00	M	15.12	$ 73.35	$ 1,109.05	$ 1,529.33
#14/4 SJ CORD	5,400	$ 1,228.32	M	$ 6,632.93	35.00	M	189.00	$ 73.35	$ 13,863.15	$ 20,496.08
#12/4 SJ CORD	5,400	$ 1,206.93	M	$ 6,517.42	42.00	M	226.80	$ 73.35	$ 16,635.78	$ 23,153.20
#350/1C 5KV CU SHLD 133%	70,896	$ 2,786.15	M	$ 197,526.89	45.00	M	3,190.32	$ 73.35	$ 234,009.97	$ 431,536.86
#500/1C 5KV CU SHLD 133%	2,016	$ 3,491.70	M	$ 7,039.27	56.40	M	113.70	$ 73.35	$ 8,339.90	$ 15,379.17
#350kCMil 35kV MV-105 Power Cable	10,656	$ 3,743.62	M	$ 39,892.01	55.00	M	586.08	$ 73.35	$ 42,988.97	$ 82,880.98
										$ 584,902.10
TERMINATIONS										
350 5KV HV TERMINATION	620	$ 35.00	E	$ 21,700.00	2.70	E	1,674.00	$ 73.35	$ 122,787.90	$ 144,487.90
500 5KV HV TERMINATION	56	$ 35.00	E	$ 1,960.00	2.95	E	165.20	$ 73.35	$ 12,117.42	$ 14,077.42
350 35KV HV TERMINATION	96	$ 70.00	E	$ 6,720.00	2.95	E	283.20	$ 73.35	$ 20,772.72	$ 27,492.72
350MCM 3-WAY SPLICE	56	$ 70.00	E	$ 3,920.00	8.65	E	484.40	$ 73.35	$ 35,530.74	$ 39,450.74
										$ 225,508.78
EQUIPMENT										
5kVDC Switchboard (3000A Bus, 4-Section) FBO	1	$ -	E	$ -	64.00	E	64.00	$ 73.35	$ 4,694.40	$ 4,694.40
5kVDC Switchboard (2500A Bus, 3-Section) FBO	1	$ -	E	$ -	48.00	E	48.00	$ 73.35	$ 3,520.80	$ 3,520.80
5kVAC Grid Simulation Package #1 (3000A Bus, 4-Section)	1	$ 200,000.00	E	$ 200,000.00	64.00	E	64.00	$ 73.35	$ 4,694.40	$ 204,694.40
5kVAC Grid Simulation Package #2 (2500A Bus, 4-Section)	1	$ 200,000.00	E	$ 200,000.00	64.00	E	64.00	$ 73.35	$ 4,694.40	$ 204,694.40

EcoEnergy Construction

Clemson University

Wind Turbine Drivetrain Testing Facility

Material	Quantity		M Price	U	Material ($)	Labor	U	Labor (Hrs)		Labor Rate	Labor ($)	Total Cost ($)
7.5MVA DC Drive Unit #1 (FBO)	1	$	-	E	$ -	24.00	E	24.00	$	73.35	$ 1,760.40	$ 1,760.40
7.5MVA DC Drive Unit #2 (FBO)	1	$	-	E	$ -	24.00	E	24.00	$	73.35	$ 1,760.40	$ 1,760.40
15.0MVA Power Converter w/Opt. Grid Dist. Sim. (FBO)	1	$	-	E	$ -	72.00	E	72.00	$	73.35	$ 5,281.20	$ 5,281.20
7.5MVA Power Converter w/Opt. Grid Dist. Sim. (FBO)	1	$	-	E	$ -	48.00	E	48.00	$	73.35	$ 3,520.80	$ 3,520.80
15MVA AC/DC Rectifier (FBO)	1	$	-	E	$ -	24.00	E	24.00	$	73.35	$ 1,760.40	$ 1,760.40
7.5MVA AC/DC Rectifier (FBO)	1	$	-	E	$ -	16.00	E	16.00	$	73.35	$ 1,173.60	$ 1,173.60
												$ 432,860.80
MISCELLANEOUS												
Engineering	1	$	276,000.00	E	$ 276,000.00	0.00	E	0.00	$	73.35	$ -	$ 276,000.00
General Conditions	1	$	282,321.27	E	$ 282,321.27	0.00	E	0.00	$	73.35	$ -	$ 282,321.27
Subcontracted Services	1	$	95,000.00	E	$ 95,000.00	0.00	E	0.00	$	73.35	$ -	$ 95,000.00
Testing/Commissioning	1	$	85,000.00	E	$ 85,000.00	0.00	E	0.00	$	73.35	$ -	$ 85,000.00
Bonding/Insurance	1	$	52,400.00	E	$ 52,400.00	0.00	E	0.00	$	73.35	$ -	$ 52,400.00
												$ 790,721.27

Total Cost:	$ 2,634,725.01
+8% Mark-up:	$ 210,778.00
Subtotal:	$ 2,845,503.01
+5% Fee:	$ 142,275.15
	$ 2,987,778.16

CURI – CLEMSON UNIVERSITY
WIND TURBINE DRIVE TEST FACILITY PROJECT
CHARLESTON, SOUTH CAROLINA

STUDY BASIS

REV. 1, August 17, 2009

This study represents a feasibility grade estimate based on the early criteria and scope developed for the proposed Wind Turbine Drive Test Facility. Included within the scope of this study is the renovation of a portion of the existing Building 69 located within the old Charleston Naval Shipyard and construction of a small Prep building adjacent to the building. Within Building 69 approximately 52,000 square feet of the existing 82,000 square feet facility will be renovated for the new process. The existing facility is a warehouse and was determined to be the best location for this proposed facility based on its configuration and close proximity to existing dock and rail services. Building modifications include construction of 2 large equipment foundations for the test drive equipment, installation of 4-150tn bridge cranes with associated crane girders and framing, and construction of approximately 7,000 square feet of conditioned administrative/support areas. The remaining building areas were assumed to remain essentially unchanged. The 2 large equipment foundations and the heavy bridge crane loads will require a portion of the building slab to be removed (approximately 2 bays) and piling will be required. Due to the head room clearance within the building, the use of 8" mini-piles is anticipated. Two bridge crane bays with 2 cranes each will be constructed to provide material handling within the building and on the test equipment. Also to allow for material handling and off loading of equipment outside the building limit, the planned crane bays will extend approximately 40 feet to an exterior rail unloading area. The Prep building will be constructed beyond the rail unloading area. This free standing structure is estimated to be 2,500 square feet supported by a steel frame structure and enclosed with metal siding and roofing. One of the 2 crane bays will be extended to the inside of this building to support material handing of equipment. Construction of the rail unloading spur which runs between the existing dock and the existing rail line will be by others outside the scope of this facility estimate. Other estimated exterior/site area modifications are assumed to be minor. The estimate work breakdown structure is by location (Site, Test Facility and Prep Building) and by CSI division.

General Assumptions/Clarifications

- Estimate is priced in US dollars.
- Test equipment will be furnished and installed outside the scope of this estimate (cost and scope will be by the equipment vendor – Renk Nacelle). Assumed this scope will be turnkey including all associated engineering, on site construction, on site construction management and commissioning.
- The cost for all required process automation will be the equipment vendor outside the scope of this estimate.
- Bridge crane pricing reflects budget price from American Crane.
- Cooling tower and air compressor are assumed to be small units. Equipment pricing reflects assumptions by the estimator.
- Mini piles were assumed to be 8" diameter, 70 feet deep piles based on conceptual pricing provided by a local contractor.
- Bridge crane columns and framing weights reflect an average weight per linear feet based on a historical norm.
- Bridge crane column foundations are estimated to be 8' x 8' x 4' pile caps with 4 piles each spaced 20 feet a part.

STUDY BASIS

- The test bed foundations, one for each potential vendor, are sized based on preliminary equipment data sizing (10 meters wide by 34 meters long) and assumed to be 6 feet thick with approximately 70 piles under each foundation. Piling count reflects rough equipment loads and assumed pile loading provided by a local contractor (Palmetto Gunite).
- All excavated material was estimated to be hauled off site. Material haul off rates reflect actual experience local to the site.
- Once the test bed and crane foundations are installed, the removed slab areas will be re-poured and patched along the new foundations.
- New conditioned building areas include restroom areas, control rooms, electrical rooms and some administration areas. Total combined area to be fitted out is approximately 7,000 square feet. This includes area architectural, self contained HVAC, plumbing and building electrical.
- New building restrooms are assumed to be located near existing sanitary and potable water services. Assumed only a small portion of the existing floor slab will be removed for this tie-in.
- Remaining areas aside from minor modifications are assumed to remain unchanged.
- Based on the information provided within the facility summary report assumed no hazardous materials remediation will be required. Assumed no allowance for identification or remediation of hazardous materials.
- Aside from minor sanitary floor drainage additions required as a result of the new restrooms, assumed no new building floor drains or floor drain collection systems will be required as a result of this project.
- Aside from some minor modifications as a result of the traveling bridge crane, assumed the existing building shell will remain as is and will not be modified or upgraded as a result of this project.
- Construction general conditions estimate reflects a reduced historical norm. Assumed a portion of the existing building shell could be utilized as construction/project offices during the construction phase.
- Due to current market conditions and anticipated project schedule assumed no escalation will be required for this project.
- CM estimate reflects a percentage of the total direct construction.
- Project engineering estimate reflects a percentage of the total installed cost.
- Commissioning cost is excluded from this portion of the estimate and will be by others.
- Construction contingency has been included at 10% of the total cost.
- While no allowance has been included for internal owner's cost, line item allowances have been included for the following owner type items: area signage, client supported equipment, office equipment, publication/print room equipment and modification allowances for existing site fork trucks.
- This report is based on information not within Fluor's control. It is believed that the estimates and conclusions contained herein are reliable under the conditions and subject to the qualifications set forth, however, Fluor does not warrant or guarantee the accuracy or correctness of the information or conclusions contained herein. Use of this report shall, therefore, be at the user's sole risk. Such use shall constitute a release of Fluor and its employees from and against any liability

(including, without limitation, liability for special, indirect or consequential damages) in connection with such use. Such release shall apply in contract, tort (including negligence of Fluor or its employees, whether active, passive, joint of concurrent), strict liability, or other theory of legal liability.

ROM ESTIMATE
CURI - WIND TURBINE TEST FACILITY
CHARLESTON, SOUTH CAROLINA
TOTAL PROJECT SUMMARY

Rev 1
Data Date: 17-Aug-09
Print Date: 24-Aug-09

	Site / Site Pipe Racks / Site Electrical	Building 69 Test Facility	Prep Building	Common to All Areas	Total
Building Area (SF)	0	51,840	2,500		54,340
Div 02 - Sitework / Site Improvements / Demolition	$290,000	$419,524	$15,000		$724,524
Div 03 - Concrete		$3,962,691	$319,472		$4,282,164
Div 05 - Structural Steel		$1,335,000	$230,000		$1,565,000
Div 06-10 - Architectural		$990,200	$330,000		$1,320,200
Div 13 - Special Construction - Cold Rms		$0	$0		$0
Div 14 - Vertical Transportation		$0	$0		$0
Div 15 - Plumbing & Drainage		$420,200	$33,000		$453,200
Div 15 - Fire Protection		$259,200	$12,500		$271,700
Div 15 - HVAC & BAS - Dry Side		$798,400	$70,000		$868,400
Div 16 - Electrical	$424,000	$828,480	$62,150		$1,314,630
Div 17 - Instrumentation - Purchase Devices, Install & Bulk Materials		$0	$0		$0
Div 17 - Process Automation - Hardware & Configuration		$0	$0		$0
Div 18 - Process & Utility Equipment Install		$280,000	$0		$280,000
Div 18 - Process & Utility Piping	$240,000	$0	$0		$240,000
Div 19 - Pipe & Equipment Insulation		$0	$0		$0
Div 23 - Process & Utility Equipment Purchase		$2,800,000	$0		$2,800,000
Freight		$84,000		$355,000	$84,000
Site General Conditions				None Incl	$355,000
Escalation					None Incl
Total Direct Construction (TDC)	$954,000	$12,177,696	$1,072,122	$355,000	$14,558,818
Cost per Square Foot		$235	$429		$268
Construction Management @7% TDC					$1,019,117
Total Field Costs (TFC)					$15,577,935
Engineering @ 6% TIC					$994,336
Total Installed Costs (TIC)					$16,572,272
Commissioning					By Equipment Vendor
Total EPCM w/o Contingency					$16,572,272
Land Acquisition					Not Required
Test Equipment Vendor Costs					Not Included
Signage					$30,000
Client Supported Equipment					$100,000
Office Equipment					$112,000
Publication/Print Room					$3,000
Modify Existing Fork Trucks					$25,000
Owner's Cost					Not Included
Contingency @10% S/T					$1,684,227
Owner's Contingency / Management Reserve					Not Included
TOTAL PROJECT COSTS w/o Eqpt Vendor or Owner's Cost					$18,526,499
				USE	$18.5 MM

Applicant Name: Clemson University

Award Number: _____

Cummulative

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

Section A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. CU-WTDTF	81.087			$45,000,000	$51,072,206	$96,072,206
2.						$0
3.						$0
4.						$0
5. Totals		$0	$0	$45,000,000	$51,072,206	$96,072,206

Section B - Budget Categories

6. Object Class Categories	Grant Program, Function or Activity (1) Requested	(2) Required Match	(3) Additional Match	(4)	Total (5)
a. Personnel	$0	$0	$4,185,729		$4,185,729
b. Fringe Benefits	$0	$0	$1,408,793		$1,408,793
c. Travel	$0	$0	$145,200		$145,200
d. Equipment	$35,876,750	$4,340,000	$10,000,000		$50,216,750
e. Supplies	$0	$0	$105,600		$105,600
f. Contractual	$2,002,000	$0	$0		$2,002,000
g. Construction	$7,121,250	$14,283,218	$122,310		$21,526,778
h. Other	$0	$5,607,551	$7,864,380		$13,471,931
i. Total Direct Charges (sum of 6a-6h)	$45,000,000	$24,230,769	$23,832,012	$0	$93,062,781
j. Indirect Charges	$0	$0	$3,009,425		$3,009,425
k. **Totals** (sum of 6i-6j)	$45,000,000	$24,230,769	$26,841,437	$0	$96,072,206
7. Program Income	$0	$0	$2,824,441	$0	$2,824,441

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Section C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
8. CU-WTTF	$10,882,005	$26,602,551	$13,525,000	$51,009,556
9.				$0
10.				$0
11.				$0
12. **Total** (sum of lines 8 - 11)	$10,882,005	$26,602,551	$13,525,000	$51,009,556

Section D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	$29,973,882	$7,418,518	$10,958,942	$1,688,352	$9,908,070
14. Non-Federal	$24,464,334	$23,349,173	$481,017	$293,708	$340,436
15. **Total** (sum of lines 13 and 14)	$54,438,216	$30,767,691	$11,439,959	$1,982,060	$10,248,506

Section E - Budget Estimates of Federal Funds Needed for Balance of the Project

	Future Funding Periods (Years)			
(a) Grant Program	(b) First	(c) Second	(d) Third	(e) Fourth
16. CU-WTTF				
17.				
18.				
19.				
20. **Total** (sum of lines 16-19)	$0	$0	$0	$0

Section F - Other Budget Information

21. Direct Charges	22. Indirect Charges

23. Remarks

See notes in years 4 and 5 related to program income.

Cash needs are only forecasted for year 1.

In-Kind contributions are not reflected in the proforma budget and cause a variance in 424A and Proforma Budgets

Applicant Name: Clemson University

Award Number: _____

Year 1

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

on A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
CU-WTDTF	81.087			$29,973,882	$24,464,334	$54,438,216
						$0
						$0
						$0
Totals		$0	$0	$29,973,882	$24,464,334	$54,438,216

ction B - Budget Categories

Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Requested	(2) Required Match	(3) Additional Match	(4)	
a. Personnel			$529,191		$529,191
b. Fringe Benefits			$179,249		$179,249
c. Travel			$30,500		$30,500
d. Equipment	$24,421,688		$10,000,000		$34,421,688
e. Supplies			$15,000		$15,000
f. Contractual	$385,000				$385,000
g. Construction	$5,167,194	$1,158,528			$6,325,722
h. Other		$5,607,551	$6,567,880		$12,175,431
i. Total Direct Charges (sum of 6a-6h)	$29,973,882	$6,766,079	$17,321,820	$0	$54,061,781
j. Indirect Charges			$376,435		$376,435
k. **Totals** (sum of 6i-6j)	$29,973,882	$6,766,079	$17,698,255	$0	$54,438,216
. Program Income					$0

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ction C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
CU-WTTF	$2,703,255	$11,656,079	$10,105,000	$24,464,334
				$0
				$0
).				$0
1.				
2. **Total** (sum of lines 8 - 11)	$2,703,255	$11,656,079	$10,105,000	$24,464,334

ection D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
3. Federal	$29,973,882	$7,418,518	$10,958,942	$1,688,352	$9,908,070
14. Non-Federal	$24,464,334	$23,349,173	$481,017	$293,708	$340,436
15. **Total** (sum of lines 13 and 14)	$54,438,216	$30,767,691	$11,439,959	$1,982,060	$10,248,506

Section E - Budget Estimates of Federal Funds Needed for Balance of the Project

(a) Grant Program	**Future Funding Periods (Years)** (b) First	(c) Second	(d) Third	(e) Fourth
16. CU-WTTF	$14,229,118	$797,000		
17.				
18.				
19.				
20. **Total** (sum of lines 16-19)	$14,229,118	$797,000	$0	$0

Section F - Other Budget Information

21. Direct Charges

22. Indirect Charges

23. Remarks

Applicant Name: Clemson University

Award Number:

Year 2

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

A - Budget Summary

ant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
J-WTDTF	81.087			$14,229,118	$14,962,998	$29,192,116
						$0
						$0
						$0
Totals		$0	$0	$14,229,118	$14,962,998	$29,192,116

on B - Budget Categories

bject Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Requested	(2) Required Match	(3) Additional Match	(4)	
Personnel			$734,191		$734,191
. Fringe Benefits			$249,831		$249,831
. Travel			$45,200		$45,200
. Equipment	$11,055,062				$11,055,062
. Supplies			$20,000		$20,000
. Contractual	$1,220,000				$1,220,000
g. Construction	$1,954,056	$13,124,690	$122,310		$15,201,056
h. Other			$122,880		$122,880
i. Total Direct Charges (sum of 6a-6h)	$14,229,118	$13,124,690	$1,294,412	$0	$28,648,220
j. Indirect Charges			$543,896		$543,896
k. **Totals** (sum of 6i-6j)	$14,229,118	$13,124,690	$1,838,308	$0	$29,192,116
Program Income					$0

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n C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
I-WTTF	$1,715,998	$10,142,000	$3,105,000	$14,962,998
				$0
				$0
				$0
otal (sum of lines 8 - 11)	$1,715,998	$10,142,000	$3,105,000	$14,962,998

on D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
ederal	$0				
on-Federal	$0				
otal (sum of lines 13 and 14)	$0				

on E - Budget Estimates of Federal Funds Needed for Balance of the Project

(a) Grant Program	**Future Funding Periods (Years)** (b) First	(c) Second	(d) Third	(e) Fourth
CU-WTTF	$797,000			
Total (sum of lines 16-19)	$797,000	$0	$0	$0

tion F - Other Budget Information

Direct Charges

22. Indirect Charges

Remarks

Applicant Name: Clemson University

Award Number:

Year 3

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

ion A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
CU-WTDTF	81.087			$797,000	$6,958,894	$7,755,894
						$0
						$0
						$0
Totals		$0	$0	$797,000	$6,958,894	$7,755,894

ction B - Budget Categories

Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Requested	(2) Required Match	(3) Additional Match	(4)	
a. Personnel			$1,129,191		$1,129,191
b. Fringe Benefits			$379,963		$379,963
c. Travel			$39,200		$39,200
d. Equipment	$400,000	$4,340,000			$4,740,000
e. Supplies			$10,000		$10,000
f. Contractual	$397,000				$397,000
g. Construction					$0
h. Other			$213,940		$213,940
i. Total Direct Charges (sum of 6a-6h)	$797,000	$4,340,000	$1,772,294	$0	$6,909,294
j. Indirect Charges			$846,600		$846,600
k. **Totals** (sum of 6i-6j)	$797,000	$4,340,000	$2,618,894	$0	$7,755,894
Program Income					$0

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ion C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
CU-WTTF	$2,618,894	$4,235,000	$105,000	$6,958,894
				$0
				$0
				$0
Total (sum of lines 8 - 11)	$2,618,894	$4,235,000	$105,000	$6,958,894

tion D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
Federal	$0				
Non-Federal	$0				
Total (sum of lines 13 and 14)	$0	$0	$0	$0	$0

tion E - Budget Estimates of Federal Funds Needed for Balance of the Project

(a) Grant Program	**Future Funding Periods (Years)** (b) First	(c) Second	(d) Third	(e) Fourth
CU-WTTF				
. **Total** (sum of lines 16-19)	$0	$0	$0	$0

ction F - Other Budget Information

. Direct Charges

22. Indirect Charges

. Remarks

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Applicant Name: Clemson University

Award Number: _____

Year 4

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

ion A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
CU-WTDTF	81.087				$2,468,621	$2,468,621
						$0
						$0
						$0
Totals		$0	$0	$0	$2,468,621	$2,468,621

ction B - Budget Categories

Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Requested	(2) Required Match	(3) Additional Match	(4)	
a. Personnel			$896,578		$896,578
b. Fringe Benefits			$299,875		$299,875
c. Travel			$15,000		$15,000
d. Equipment					$0
e. Supplies			$30,000		$30,000
f. Contractual					$0
g. Construction					$0
h. Other			$463,940		$463,940
i. Total Direct Charges (sum of 6a-6h)	$0	$0	$1,705,393	$0	$1,705,393
j. Indirect Charges			$763,228		$763,228
k. **Totals** (sum of 6i-6j)	$0	$0	$2,468,621	$0	$2,468,621
. Program Income			$946,414		$946,414

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C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
WTTF	$2,363,621		$105,000	$2,468,621
				$0
				$0
				$0
al (sum of lines 8 - 11)	$2,363,621	$0	$105,000	$2,468,621

n D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
deral	$0				
n-Federal	$0				
tal (sum of lines 13 and 14)	$0	$0	$0	$0	$0

n E - Budget Estimates of Federal Funds Needed for Balance of the Project

(a) Grant Program	Future Funding Periods (Years) (b) First	(c) Second	(d) Third	(e) Fourth
U-WTTF				
otal (sum of lines 16-19)	$0	$0	$0	$0

ion F - Other Budget Information

Direct Charges

22. Indirect Charges

Remarks

4 Program Income will be placed in cash reserves for future years

Year 5

Applicant Name: Clemson University

Award Number: _____

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

Section A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
CU-WTDTF	81.087				$2,217,359	$2,217,359
						$0
						$0
						$0
Totals		$0	$0	$0	$2,217,359	$2,217,359

Section B - Budget Categories

Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Requested	(2) Required Match	(3) Additional Match	(4)	
a. Personnel			$896,578		$896,578
b. Fringe Benefits			$299,875		$299,875
c. Travel			$15,300		$15,300
d. Equipment					$0
e. Supplies			$30,600		$30,600
f. Contractual					$0
g. Construction					$0
h. Other			$495,740		$495,740
i. Total Direct Charges (sum of 6a-6h)	$0	$0	$1,738,093	$0	$1,738,093
j. Indirect Charges			$479,266		$479,266
k. **Totals** (sum of 6i-6j)	$0	$0	$2,217,359	$0	$2,217,359
7. Program Income			$1,878,027		$1,878,027

SF-424A (Rev. 4-92)
Prescribed by OMB Circular A-102

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n C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
U-WTTF	$1,480,237	$569,472	$105,000	$2,154,709
				$0
				$0
				$0
Total (sum of lines 8 - 11)	$1,480,237	$569,472	$105,000	$2,154,709

ion D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
Federal	$0				
Non-Federal	$0				$0
Total (sum of lines 13 and 14)	$0	$0	$0	$0	

ction E - Budget Estimates of Federal Funds Needed for Balance of the Project

(a) Grant Program	Future Funding Periods (Years) (b) First	(c) Second	(d) Third	(e) Fourth
. CU-WTTF				
.				
.				
.				$0
. **Total** (sum of lines 16-19)	$0	$0	$0	

ection F - Other Budget Information

1. Direct Charges

22. Indirect Charges

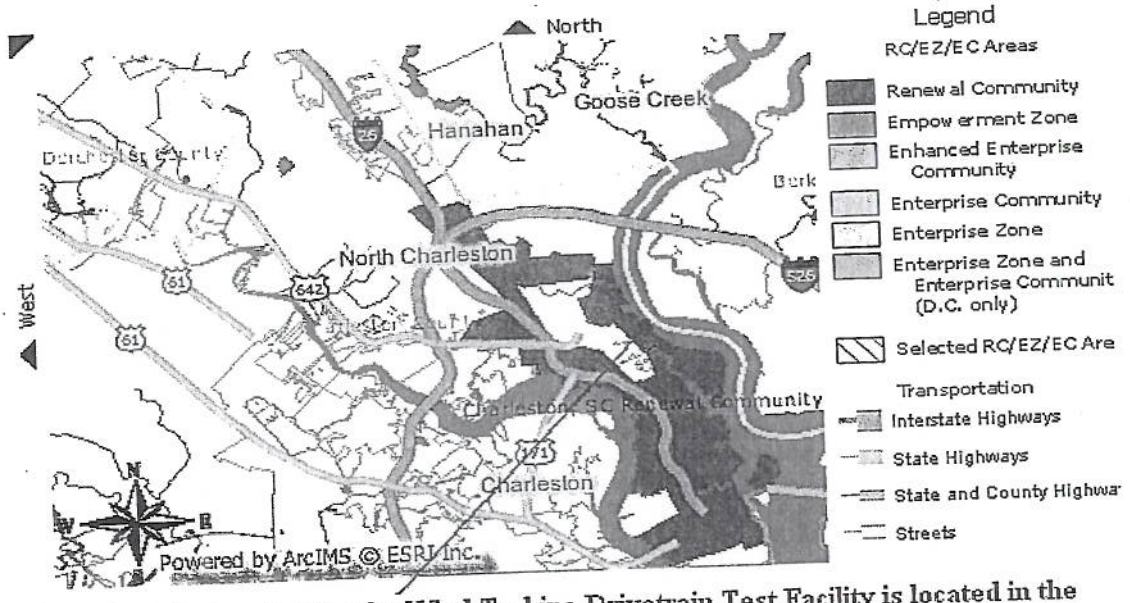
3. Remarks

Year 5 expenditures are partially covered by Program Income, the remainder to be added to cash reserves is $1,815,377, see pro forma.

Economically Distressed Area Documentation DE-FOA-0000112

The project site is located on a former US Naval Shipyard which was closed in 1995 under the national Base Realignment and Closure action of 1993 (BRAC). The impact of the shipyard closure on the area economy was devastating as it was the largest Naval Shipyard in the US and because as a shipyard, it had significant civilian employment in the form of the various tradeworkers needed in that activity. The Charleston Naval Shipyard was a US Department of Navy facility that repaired, overhauled, and maintained Navy ships, including nuclear-powered ships. Drydocks, cranes, waste-handling facilities, and offices were located at the shipyard. Activities supporting nuclear propulsion systems were performed under the Naval Nuclear Propulsion Program (NNPP), a joint DOE and US Department of Navy program responsible for all activities relating to naval nuclear propulsion. On April 1, 1996, operations ceased and it resulted in the loss of 8,722 military and 6,272 civilian jobs. A concise history of the Naval Shipyard can be found on the web at http://shop38.homestead.com/1.html.

Much of the former shipyard has transferred into private ownership through the efforts of the Charleston Naval Base Redevelopment Authority and local economic development efforts. Many of the jobs lost from the closure of one of the largest naval shipyards in the United States have slowly been gained back through privatization or relocation and expansion of other government entities. The entire area surrounding the former shipyard, however, remains an economically distressed area as shown on the map below from Housing and Urban Development.



Project site location for the Wind Turbine Drivetrain Test Facility is located in the heart of one of the 40 HUD Renewal Communities across the nation.

As shown on the map of the Charleston, SC Renewal Community (see pointer), the proposed site is surrounded by areas that have been identified by HUD as a Renewal Community. This community in Charleston and North Charleston is one of only 40 HUD Renewal Communities in the nation, qualifying for tax incentives for employers hiring in these depressed communities.

Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

AUG 2 0 2009

Sara Wilson
U. S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, CO 80401

Dear Ms. Cole:

SUBJECT: U. S. Department of Energy, Golden Field Office, "Recovery Act: Large Wind Turbine Drivetrain Testing Facility" Solicitation DE-FOA-0000112 Amendment 000004

Savannah River Nuclear Solutions' (SRNS) Savannah River National Laboratory (SRNL) is planning to participate on a proposal that will be submitted in response to the subject solicitation. One requirement of the solicitation (see Part III Section C, page 16) is that a Federally Funded Research and Development Center's (FFRDC) cognizant Contracting Officer must authorize in writing the use of the DOE FFRDC contractor on the proposal and this authorization must be submitted with the application.

Authorization is granted for the Savannah River National Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory, and will not adversely impact execution of the DOE assigned programs at the laboratory, and will not place the laboratory in direct competition with the domestic private sector.

In order to provide the requested services, it is anticipated that SRNS would enter into an appropriate technology transfer vehicle such as a Work for Other Agreement, contingent upon the negotiations of mutually acceptable terms and statement of work and subject to DOE's approval.

If you have any questions regarding this submission, please contact me at (803) 952-8802 or james.hawkins@srs.gov.

Sincerely,

James E. Hawkins
Contracting Officer

cc:
R. E. Peters, 730-1B, Rm. 3018
B. R. Beckum, 773-41A, Rm. 229
L. Campbell, 730-B, Rm. 2364
OCM Reading File

South Carolina PUBLIC RAILWAYS
KEEPING BUSINESS ON TRACK

August 12, 2009

Dr. John Kelly
Clemson University
Vice President, PSA
Executive Director, Clemson University Restoration Institute
1360 Truxton Avenue, Suite 300 B
North Charleston, SC 29405-2045

Dear Dr. Kelly:

South Carolina Public Railways (SCPR) is pleased to provide support for the proposed grant application for Clemson University in response to DE-FOA-0000112, Large Wind Turbine Drivetrain Test Facility. In support of the application, SCPR will commit to extend the existing railway infrastructure to Building 69 at the Charleston Naval Complex and to the head of Drydock 3 upon Clemson University's successful award of the grant described herein.

The proposed rail modification, as depicted and described in the attached Building 69 Access drawing and description prepared by Genesis Consulting and Engineering, will allow the Facility to receive large equipment either by ship or rail. SCPR is committed to providing the rail modification as a cost share to the project with an estimated value of $366,551.00.

The proposed Wind Turbine Drivetrain Test Facility will serve as the catalyst to establish a wind energy manufacturing cluster in the Charleston area bringing economic development while keeping South Carolina on the leading edge of the wind energy industry through continuing research and development.

Sincerely,

Jeffrey McWhorter
President & CEO

Attachments

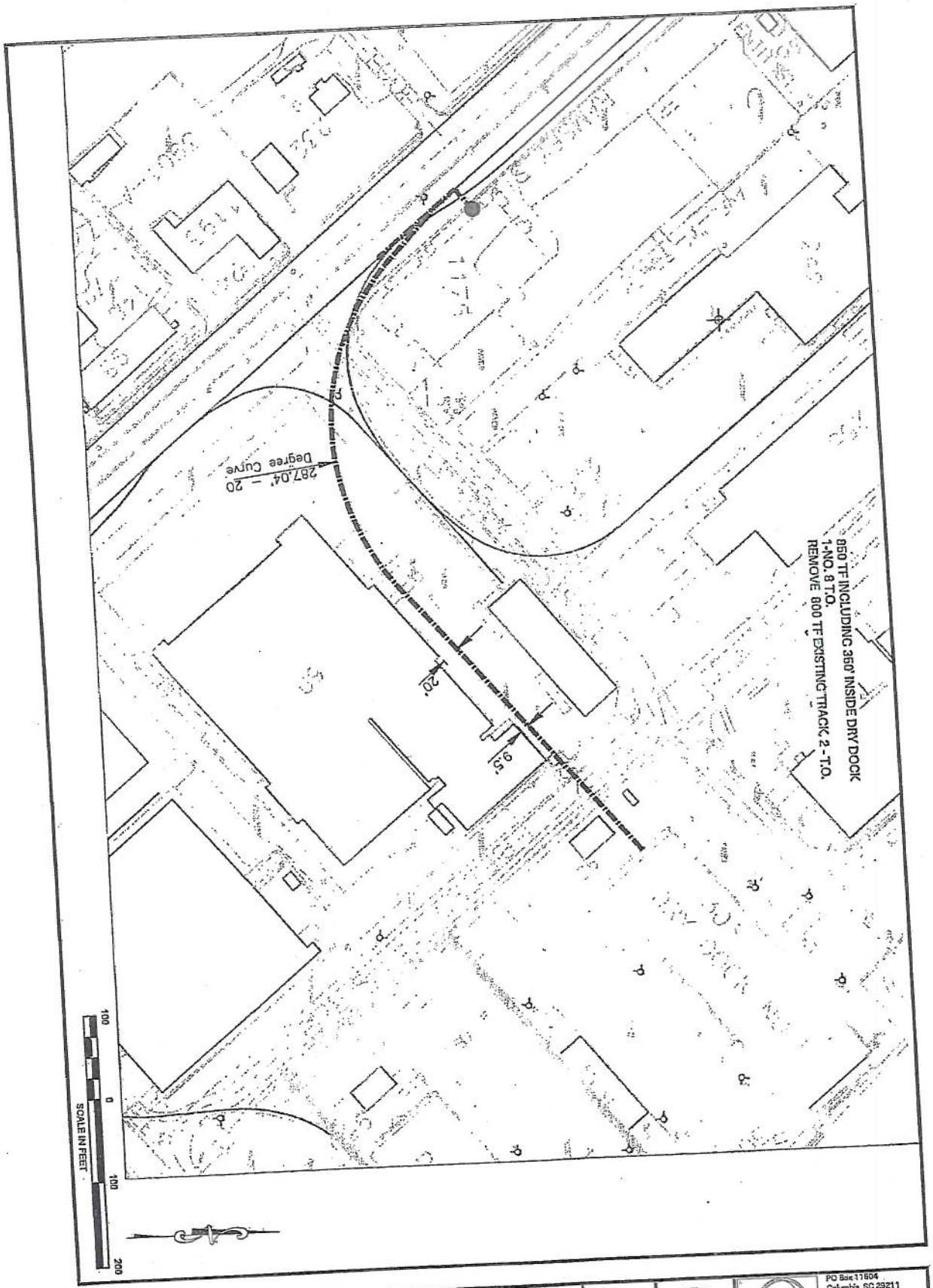
540 East Bay Street | Charleston, SC 29403 | p: 843.727.2067 | f: 843.727.2005

Bldg. 69 Access
Rail Infrastructure Cost Estimate
Total Length - 0.16 Miles

GENESIS
CONSULTING GROUP

ITEM NO.	ITEM	UNIT	UNIT QUANTITY	UNIT COST	TOTAL COST
	(New Alignment)				
	Relay 115# RE, 6" Nominal Base Rail, Relay No. 1	T.F.	850	$34.50	$29,325
	New Rail Installation	T.F.	850	$20.00	$17,000
	Ballast, 6" Below Ties	Tons	480	$45.00	$21,614
	Joint Bars - 6 holes (cost included in the rail cost above)	Ea	44		
	Bolts for Joint Bars (cost included in the rail cost above)	Ea	174		
	Tie Plates, Double Shoulder, Relay	Ea	1,000	$3.75	$3,750
	Spikes	Kegs	8	$90.00	$720
	Anchors, New	Ea	349	$1.39	$485
1	Sub-Total/Cost per Foot Rail and OTM	T.F.	850	$85.76	$72,894
2	Install Crossties at 21" tie spacing Mainline Ties, Grade 4/5	Ea	486	$45.00	$21,857
3	No. 8 Turnouts (complete with switch stand/switchties)	Ea	2	$20,000.00	$40,000
4	Rail Seals in Asphalt Drives	T.F.	450	$75.00	$33,750
5	Signage	LS	1	$1,000.00	$1,000
	Total - Track Section - New Alignment				$169,501
	Roadbed Construction				
1	Mobilization @ 5%	LS	1	$6,720.72	$6,721
2	Clearing and Demolition within R/W	LS	1.0	$6,000.00	$6,000
3	Soil Stabilization - Foundation System from Dry Dock to Bldg 69A	LS	1.0	$25,000.00	$25,000
4	Remove Track/Turnouts (800 tf and 2-turnouts)	LS	1	$3,500.00	$3,500
5	Grading & Trackbed Construction	C.Y.	3,329	$6.00	$19,973
6	Borrow	C.Y.	2,164	$10.00	$21,638
7	Muck Excavation	C.Y.	1,099	$12.00	$13,182
8	Subballast, 6"	T.F.	850	$28.00	$23,800
9	Derails	Ea	1	$2,000.00	$2,000
10	18" CMP	L.F.	25	$26.00	$650
11	Erosion Control (silt fence, hay bales)	LS	1	$5,000	$5,000
12	Grassing	AC	0.5	$2,500	$1,171
13	Misc. Utility Improvements	LS	1	$10,000	$10,000
14	Field Engineering Layout	LS	1	$2,500	$2,500
	Total - Roadbed Construction				$141,135
	Total Construction Cost (Budget Estimate)				$310,636

Total Construction Costs	$310,636
Contingencies @ 10%	$31,064
Engineering Design, Surveys, Permitting and Construction Administration @ 8%	$24,851
Total Project	$366,551



C1.0

RAIL ACCESS PLAN

SOUTH CAROLINA PUBLIC RAILWAYS
NAVAL BASE ACCESS - BLDG 53A

NAVAL BASE
CHARLESTON, SC

GENESIS CONSULTING GROUP

PO Box 11604
Columbia, SC 29211

1330 Lady Street, Suite 206
Columbia, SC 29201
(803) 744-4500 (Main)
(803) 744-4501 (Fax)

Clemson University has requested $3,000,000 in cash support from SCE&G and feels strongly that SCE&G will respond favorably with a contribution as requested. However, at the time of submission a letter confirming this commitment was not available, but we are confident that a letter is forthcoming. Upon receipt of the letter of commitment Clemson will forward to the DOE Contracting Officer. Please see letter of request from Clemson University to SCE&G below.

CLEMSON
UNIVERSITY

Mr. Kevin Marsh
South Carolina Electric & Gas
President and Chief Operating Officer
1426 Main Street
Columbia, South Carolina 29201

Dear President Marsh,

Clemson University is requesting a commitment from South Carolina Electric and Gas (SCE&G) of $3,000,000.00 in support of Clemson University Restoration Institute's grant application for Department of Energy funding to build a drivetrain testing facility. This funding is critical to the competitiveness of this proposal and will be used specifically to help fulfill the cash component required to construct this research and education facility.

The proposed project, DE-FOA-0000112, Large Wind Turbine Drivetrain Testing Facility, made possible by the American Recovery and Reinvestment Act, brings together a qualified team, including SCE&G, with complementary skills on an existing brown-field infrastructure at the former US Naval Base in North Charleston, SC.

- Clemson University will be the lead for the proposal based on experience and expertise at the Clemson University International Center for Automotive Research (CU-ICAR) where dynamometer test facilities were designed built and operated for the automotive industry.
- The Savannah River National Laboratory (SNRL) is the applied research and development laboratory at the U.S. Department of Energy's (DOE) Savannah River Site (SRS). SRNL is collaborating on projects to advance the nation's energy security under two programs recently announced by the U.S. Department of Energy, the Energy Frontier Research Centers, and the Nuclear Energy University Programs.
- Renk-AG is a world renowned technology drive-line company that has been in the test cell manufacturing since 1986 providing test systems for the motor vehicle, naval vessels, aircraft and rail systems around the world. Renk-Labeco has 290 test systems in operation around the world and is the world leader in manufacturing electric machine bearings.
- Fluor Corporation is a Fortune 500 company that delivers engineering, procurement, construction, maintenance (EPCM), and project management to clients in diverse industries around the world. Fluor is currently building the Greater Gabbard Offshore Wind Park in the U.K. Fluor has a long standing relationship with Clemson University and is a major employer of Clemson graduates.
- EcoEnergy LLC is the affiliate electrical engineering and wind development company of Morse Energy LLC. EcoEnergy Engineering has provided critical path electrical engineering to the energy industry since 1998. EcoEnergy provides project development and engineering and construction management services to energy and wind farm projects.
- The team is complimented by the support of the State of South Carolina, the South Carolina Department of Commerce, the coastal cities of North Charleston and Charleston, all coastal counties in SC and the entire SC Federal Legislative Delegation.

This team of experts, including SCE&G, will build this project to develop a unique, cost efficient solution to meet the wind energy industry's drive train testing needs as well as to support research and education driving economic development tied to wind energy. The scope of this project is extraordinary at a nearly 90 million dollar project investment and estimated 650 jobs for the local community. The test facility will serve as the catalyst in generating industrial, commercial and residential growth for SCE&G through the establishment of an offshore wind renewable energy manufacturing cluster in the Charleston area. A Department of Energy study estimates creation of 20 thousand manufacturing direct and indirect jobs by 2030. SCE&G's initial gift would support this critical phase of a multi-phased strategy for developing wind turbine manufacturing for offshore installations in Charleston.

It is expected that the award will be announced by DOE in October 2009 with funding commencing in January 2010. The funds committed by SCE&G will be used to help meet the grant cost share resource requirements, build the project and create a sustainable test facility. With SCE&G's commitment, the Clemson University Wind Turbine Drivetrain Test Facility (CUWTDTF) will be tied to continuing research, development and educational workforce training and will serve as the catalyst to establish a wind energy manufacturing cluster in the Charleston area. The ultimate goal of this project will be to bring economic development opportunities to our State.

Best Regards,

Dr. John Kelly
Vice President, PSA
Director, Restoration Institute

John W. Kelly
Executive Director
jkelly@clemson.edu

Michael J. Drews
Conservation Center
dmichae@clemson.edu

Nicholas C. Rigas
Renewable Energy
nrigas@clemson.edu

Gene W. Eidson
Restoration Ecology
geidson@clemson.edu

Office of the Speaker
South Carolina House of Representatives

P. O. BOX 11867
Columbia 29211
(803) 734-3125

DISTRICT 114
CHARLESTON-DORCHESTER COUNTIES

HOME ADDRESS
1625 BULL CREEK LANE
CHARLESTON, SC 29414
(843) 572-1500

ROBERT W. HARRELL, JR.
SPEAKER OF THE HOUSE

August 25, 2009

Dr. John Kelly
Clemson University
Vice President, PSA
Executive Director, Clemson University Restoration Institute
360 Truxtun Avenue, Suite 300 B
North Charleston, South Carolina 29405-2045

RE: DE-FOA-0000112, Large Wind Turbine Drivetrain Testing Facility

Dear Dr. Kelly:

The State of South Carolina is writing in support of Clemson University's Large Wind Turbine Drivetrain Testing Facility grant proposal for the facility to be located on Clemson University Restoration Institute's site at the former Charleston Naval Shipyard. The scope of this project has the potential to create economic opportunities for our community, our state and the entire nation. We continue to be encouraged by the opportunities for job creation the proposal brings to our state.

In support of this project and should the DE-FOA-0000112 grant be awarded, it is our understanding, the commitment from the South Carolina Department of Commerce of $3 million will be available upon the award of this project to Clemson. Additionally, we will pursue the $7 million in resources necessary to complete the State's commitment of $10 million.

The proposed Wind Turbine Drivetrain Test facility will serve as the catalyst to establish a wind energy manufacturing cluster in the Charleston area. This proposal is but one phase of a multi-phased strategy for Clemson University and the State of South Carolina to build this economic cluster. This will provide economic development and keep South Carolina on the leading edge of the wind energy industry through Clemson's advanced research and development.

We look forward to supporting your efforts and the award announcement in October of 2009.

Sincerely,

Representative Robert W. Harrell, Jr.
Speaker of the House

Representative Daniel T. (Dan) Cooper
Chairman, Ways and Means

Senator Glenn McConnell
Senate Pro Tempore

Senator Hugh K. Leatherman, Sr.
Chairman, Senate Finance

Charleston Naval Complex
Redevelopment Authority

August 25, 2009

Dr. John Kelly
Clemson University
Vice President, PSA
Executive Director, Clemson University Restoration Institute
1360 Truxtun Avenue, Ste., 300 B
North Charleston, South Carolina 29405

Dr. John Kelly,

With respect to your imminent grant application relative to the potential wind turbine testing facility proposed for the former Charleston Naval Complex, I am pleased to enclose correspondence to the RDA from the South Carolina State Ports Authority (SCSPA), directing that the properties required for the testing facility be transferred directly to Clemson by deed from the RDA upon notification that the grant has been awarded to Clemson.

We are quite excited about the strong proposal that you have prepared, and we stand ready to comply with the directions of SCSPA upon your advising that Clemson is the recipient of the grant award. Please let me know if I may provide any further help or assurances in this regard.

Sincerely,

Robert Ryan

Enclosure

1360 Truxtun Avenue, Suite 300 • North Charleston, SC 29405-2005
Phone (843) 747-0010 • Fax (843) 747-0054

South Carolina State **PORTS AUTHORITY**

P.O. Box 22287
Charleston, S.C. 29413-2287 USA
(843) 723-8651
Fax: (843) 577-8191

August 25, 2009

Mr. Robert Ryan
Executive Director
Charleston Naval Complex Redevelopment Authority
1360 Truxton Avenue, Suite 300
North Charleston, SC 29405

Dear Robert:

The South Carolina State Port Authority has been asked to support, and does support Clemson University Restoration Institute's (CURI) Large Wind Turbine Drivetrain Testing Facility grant proposal, to be located on CURI's site at the former Charleston Naval Shipyard. As a partner in the consortium that supports the project, we are excited to see the development of the wind turbine project and its potential to create economic opportunities for the maritime transportation sector and increased export trade. We continue to be encouraged by the opportunities for job creation that CURI's Renewable Energy Research Program promises to bring to our state.

We expect the proposed Wind Turbine Drivetrain Test facility to serve as the catalyst to establish a wind energy manufacturing cluster in the Charleston area. This would provide economic development and keep South Carolina on the leading edge of the wind energy industry through Clemson's demonstrated success in advanced research and development in this field. Clemson's reports indicated that South Carolina has made significant advancements to develop not only its own wind energy resources, but also the development of wind resources around the world through the work at Clemson University.

Should DE-FOA-0000112 grant for Large Turbine Drivetrain Testing Facility, made possible by the America Recovery and Reinvestment Act, be awarded to Clemson University, the South Carolina State Ports Authority, commits to making available to Clemson University Research Foundation property, South of Supply Street and North of Kilo Street, encompassing building 69 and its 6.3 acres and building 1824 with lot 68 comprising 4.8 acres, as well as the Drydock 3 property previously committed.

In connection with that commitment, the SCSPA would ask the RDA, conditioned on Clemson's obtaining the grant identified above, to convey to Clemson, for the purpose of the above grant and project only, the portion of parcel EDC IV, Parcel 7A, bound by Supply Street to the North, by Pierside Street to the East, by Kilo Street to the South, and by Hobson Street to the West. The Authority, upon receipt of the grant by Clemson, will institute action under its bond covenants to release that portion of EDC IV-7A from the option to purchase under Article 28 of the Sublease Between Charleston Naval Complex

Redevelopment Authority and South Carolina State Ports Authority dated April 9, 1999, and approved by the South Carolina State Budget and Control Board on August 12, 1999.

Sincerely,

John F. Hassell, III

John F. Hassell, III
Interim President and Chief Executive Officer

JFH, III:mar

Hartnett Realty Company, Inc.

Appraisers – Brokers - Consultants

134 Meeting St., Suite 120
Charleston, SC 29401

Telephone: 843-723-7222
Fax: 843-723-9403

August 11, 2009

Mr. Alan M. Godfrey, Director of Real Estate and Financial Affairs
Clemson University Restoration Institute
1360 Truxtun Avenue, Suite 300B
North Charleston, South Carolina 29405-2005

Re: A Cost Approach Estimate of the Market Value of 4.8 Acres of Land and Improvements Located on Kilo Street, Old Charleston Naval Base, North Charleston, South Carolina

Dear Mr. Godfrey:

Pursuant to your request, I have made an appraisal of the above captioned property. The purpose of the appraisal was to render an opinion of the market value of the property. The appraisal is to be used in conjunction with an application for a federal grant.

As a result of my appraisal and analysis, an opinion has been formed that the replacement values of the existing improvements, as per the attached Fagin Inc. estimate, plus estimated value of the subject site as of August 4, 2009, was:

Four Million Nine Hundred Ninety-Five Thousand Dollars
($ 4,995,000)

As per your instructions I have employed only the Cost Approach to Value. It is my understanding that this is satisfactory to your needs at the present time.

Neither this assignment nor my compensation for making this report was based on a requested minimum valuation, a specific valuation, or the approval of a loan.

The appraisal has also been made in conformity with the Code of Ethics of the Appraisal Section of the National Association of Realtors and the Appraisal Institute.

2. **Testing**: Winergy will commit to contracting testing drivetrain services for R&D on new products and next generation gearbox, coupling and generator designs. We envision the need for several months of dedicated testing time and are willing to invest at appropriate market rates for such services, provided the Test Center meets the applicable requirements and provided that Winergy's intellectual property is adequately protected by means of non-disclosure agreements and intellectual property ownership provisions. Our testing specifications will be further defined once the Test Center is operational.

3. **R&D Programs**: Winergy is interested in wind turbine system simulation and duty cycle development for the entire drivetrain. Winergy will work with its customers, major suppliers and other Clemson University consortia partners to identify collaborative R&D opportunities and help develop funding for such programs. As these programs become further defined, Winergy will consider committing to participate and potentially contributing financially to R&D programs that are in line with our customer needs and our product development strategy.

4. **Donate equipment**: Winergy will consider donating drivetrain equipment or providing gearboxes at below market prices for the Test Center's use to be integrated into the dynamometer and/or to serve as control units for R&D program testing protocols.

5. **Test facility**: Winergy will advise on Test Center design leveraging Siemens products and systems expertise. Winergy and Siemens will help with product specification and provide products at or below market prices (motors, drives / inverters, gearboxes, condition monitoring system, controls, etc.).

Winergy is prepared to make the aforementioned commitments based on the assumption that Clemson University is successful in securing the award to manage the Wind Drivetrain Testing Facility currently under DOE solicitation and with the condition that the Test Center uses the latest proven technology. We look forward to actively supporting Clemson University and the Clemson University Test Center.

Sincerely,

Parthiv Amin

Parthiv Amin
President
Winergy Drive Systems Corp.
Elgin, IL
Phone: +1-847-531-7400
Email: Parthiv.Amin@Winergy-usa.com

JAMES E. CLYBURN
6TH DISTRICT, SOUTH CAROLINA

MAJORITY WHIP

CHAIR
FAITH WORKING GROUP

COMMITTEE:
DEMOCRATIC STEERING
AND POLICY COMMITTEE

CONGRESSIONAL BLACK CAUCUS

www.house.gov/clyburn
www.majorityvwhip.gov

Congress of the United States
House of Representatives
Washington, DC 20515–4006

August 3, 2009

Mr. Steven Chalk
Principal Deputy Assistant Secretary
Energy Efficiency and Renewable Energy
Mail Stop EE-1
Department of Energy
Washington, DC 20585

RE: Funding Announcement # DE-FOA-0000112

Dear Mr. Chalk:

As a Member of the South Carolina Congressional Delegation, I write in support of Clemson University's application for federal funding through the Large Wind Turbine Drivetrain Testing Facility program, made possible by the American Recovery and Reinvestment Act of 2009 (ARRA). Not only will this project have a direct impact on job creation and economic development in the State of South Carolina, but South Carolina is an optimal choice to house such a project.

Specifically, Clemson University seeks to develop a large wind turbine drivetrain test facility located at the Clemson University Restoration Institute (CURI) campus on the former U.S. DOD Naval Base in North Charleston, SC. Clemson's experience and expertise at the Clemson University International Center for Automotive Research (CU-ICAR), where dynamometer test facilities have been designed, built, and operated for the automotive industry, makes it well-equipped to establish this test facility. Moreover, CURI operates materials testing facilities at the Naval Base that will provide analytical support for the test facility. The site will be designed to serve the wind industry's current and future needs in large wind turbine drive train testing. The facility will also serve as platform for research, education, and workforce training.

Clemson University has partnered with an engineering and design firm, redevelopment and ports authorities, local municipalities, private industry, and a national laboratory on this proposal, bringing together a qualified team with diverse skills and complementary strengths. Specifically, these partners include: Renk Labeco, Savannah River National Laboratory, Fluor Corp., SCANA, Charleston Naval Complex Redevelopment Authority (RDA), South Carolina State Ports Authority (SCSPA), CMMC LLC., City of North Charleston and City of Charleston. Additionally, the CURI campus represents an ideal site location equipped with existing crane infrastructure to facilitate the movement of large, heavy drive trains from rail or ships.

2135 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–4006
(202) 225–3315
(202) 225–2313 FAX

R–329, THE CAPITOL
WASHINGTON, DC 20515–6503
(202) 225–3210
(202) 225–9253 FAX

1225 LADY STREET
SUITE 200
COLUMBIA, SC 29201
(803) 799–1100
(803) 799–9060 FAX

181 EAST EVANS STREET
FLORENCE, SC 29506
(843) 662–1212
(843) 662–8474 FAX

176 BROOKS BOULEVARD
SANTEE, SC 29142
(803) 854–4700
(803) 854–4900 FAX

437 AMELIA STREET
ORANGEBURG, SC 29115
(803) 533–1000
1ST & 3RD MONDAYS

21 NORTH MAIN STREET
SUMTER, SC 29150
(803) 436–2500
2ND & 4TH MONDAYS

The test facility will serve as the catalyst to establish a wind energy manufacturing cluster at the former Naval Base to bring economic development to the area. As you know, South Carolina's offshore wind potential has been documented by AWS Truewind and reported by the Department of Energy. Three of the most important cost drivers in developing an offshore wind farm include strong wind resources in shallow waters, access to good port facilities, and a large coastal demand center. According to your agency, South Carolina possesses excellent offshore wind resources close to its growing coastal demand centers in shallow waters near outstanding port facilities like Charleston and Georgetown. As the offshore wind market emerges along the East Coast of the United States and land-based turbines continue to grow in size, South Carolina is strategically positioned to serve as an industrial hub from this growing industry.

I hope you will give this project your serious consideration. Please do not hesitate to contact Michael Hacker or Danny Cromer if we can be of further assistance in this matter.

With warmest regards, I remain

Sincerely,

James E. Clyburn
Member of Congress

Cc:
Sara Wilson
Contracting Officer
Golden Field Office
U.S. Department of Energy

J. GRESHAM BARRETT
THIRD DISTRICT, SOUTH CAROLINA

ASSISTANT MAJORITY WHIP

HOUSE COMMITTEES:
BUDGET
FINANCIAL SERVICES

WASHINGTON OFFICE:
1527 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5301
FAX: (202) 226-1177

Congress of the United States
House of Representatives
Washington, DC 20515—4003

August 11, 2009

DISTRICT OFFICES

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[illegible]
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(803) 649-6571
FAX: (803) 648-0108

ANDERSON:
P.O. BOX 1126
[illegible]
ANDERSON, SC 29622
(864) 224-[illegible]
FAX: (864) 225-[illegible]

GREENWOOD:
[illegible]
GREENWOOD, SC 29649
(864) 993-[illegible]
FAX: (864) 378-[illegible]

Mr. Steven Chalk
Principal Deputy Assistant Secretary
Energy Efficiency and Renewable Energy
Mail Stop EE-1
Department of Energy
Washington DC 20585

RE: Funding Announcement # DE-FOA-0000112

Dear Mr. Chalk:

I am writing in support of Clemson University's application for federal funding through the Large Wind Turbine Drivetrain Testing Facility program, made possible by the American Recovery and Reinvestment Act of 2009 (ARRA). Not only will this project have a direct impact on job creation and economic development in the State of South Carolina, but South Carolina is an optimal choice to house such a project.

Clemson has a long outstanding history of research and innovation. For this proposed project they have partnered with Renk Labeco, Savannah River National Laboratory, Fluor Corp., SCANA, Charleston Naval Complex Redevelopment Authority (RDA), South Carolina State Ports Authority (SCSPA), CMMC LLC., City of North Charleston and City of Charleston. These partnerships make this a multi-regional effort to develop a facility that will be a platform for energy production, research, education and workforce training.

South Carolina possesses excellent offshore wind resources close to its growing coastal demand centers in shallow waters near outstanding port facilities like Charleston and Georgetown. As the offshore wind market emerges along the East Coast of the United States and land-based turbines continue to grow in size, South Carolina is strategically positioned to serve as an industrial hub from this growing industry.

I hope you will give this project your serious consideration under the guidelines of this program. Please do not hesitate to contact Kathryn Wade at (803) 629-5571 if we can be of further assistance in this matter.

Sincerely,

J. Gresham Barrett SC 03
Member of Congress

Cc: Sara Wilson, Contracting Officer
Golden Field Office
Department of Energy

PLEASE RESPOND TO:

[illegible] OFFICE

[illegible] OFFICE

HENRY E. BROWN, JR.
1ST DISTRICT, SOUTH CAROLINA

COMMITTEES:
TRANSPORTATION AND INFRASTRUCTURE
NATURAL RESOURCES
VETERANS' AFFAIRS

Congress of the United States
House of Representatives
Washington, DC 20515–4001

CAUCUS CO-CHAIRS:
CONGRESSIONAL COASTAL CAUCUS
CONGRESSIONAL SHELLFISH CAUCUS
CONGRESSIONAL FRIENDS OF CANADA CAUCUS
CONGRESSIONAL PORT SECURITY CAUCUS

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August 3, 2009

Mr. Steven Chalk
Principal Deputy Assistant Secretary
Energy Efficiency and Renewable Energy
Mail Stop EE-1
Department of Energy
Washington, DC 20585

RE: Funding Announcement # DE-FOA-0000112

Dear Mr. Chalk:

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Specifically, Clemson University seeks to develop a large wind turbine drivetrain test facility located at the Clemson University Restoration Institute (CURI) campus on the former U.S. DOD Naval Base in North Charleston, SC. Clemson's experience and expertise at the Clemson University International Center for Automotive Research (CU-ICAR), where dynamometer test facilities have been designed, built, and operated for the automotive industry, makes it well-equipped to establish this test facility. Moreover, CURI operates materials testing facilities at the Naval Base that will provide analytical support for the test facility. The site will be designed to serve the wind industry's current and future needs in large wind turbine drive train testing. The facility will also serve as platform for research, education, and workforce training.

Clemson University has partnered with an engineering and design firm, redevelopment and ports authorities, local municipalities, private industry, and a national laboratory on this proposal, bringing together a qualified team with diverse skills and complementary strengths. Specifically, these partners include: Renk Labeco, Savannah River National Laboratory, Fluor Corp., SCANA, Charleston Naval Complex Redevelopment Authority (RDA), South Carolina State Ports Authority (SCSPA), CMMC LLC., City of North Charleston and City of Charleston. Additionally, the CURI campus represents an ideal site location equipped with existing crane infrastructure to facilitate the movement of large, heavy drive trains from rail or ships.

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HENRY E. BROWN, JR.
1ST DISTRICT, SOUTH CAROLINA

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CONGRESSIONAL PORT SECURITY CAUCUS

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The test facility will serve as the catalyst to establish a wind energy manufacturing cluster at the former Naval Base to bring economic development to the area. As you know, South Carolina's offshore wind potential has been documented by AWS Truewind and reported by the Department of Energy. Three of the most important cost drivers in developing an offshore wind farm include strong wind resources in shallow waters, access to good port facilities, and a large coastal demand center. According to your agency, South Carolina possesses excellent offshore wind resources close to its growing coastal demand centers in shallow waters near outstanding port facilities like Charleston and Georgetown. As the offshore wind market emerges along the East Coast of the United States and land-based turbines continue to grow in size, South Carolina is strategically positioned to serve as an industrial hub from this growing industry.

I hope you will give this project your serious consideration. Please do not hesitate to contact Corey McGee on my staff if we can be of further assistance in this matter.

Sincerely,

Henry E. Brown, Jr.
Member Of Congress
South Carolina

Cc:
Sara Wilson
Contracting Officer
Golden Field Office
U.S. Department of Energy

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House of Representatives
Washington, DC 20515

BOB INGLIS
4TH DISTRICT, SOUTH CAROLINA

SCIENCE AND TECHNOLOGY
FOREIGN AFFAIRS

August 6, 2009

The Honorable Steven Chu
Secretary of Energy
1000 Indepedence Ave, SW
Washington, DC 20585-0001

Dear Secretary Chu,

I write in support of Clemson University's application for federal funding through the Large Wind Turbine Drivetrain Testing Facility program, made possible by the American Recovery and Reinvestment Act of 2009 (Funding Announcement # DE-FOA-0000112). Not only will this project have a direct impact on job creation and economic development in the State of South Carolina, but South Carolina is an optimal choice to house such a project.

Specifically, Clemson University seeks to develop a large wind turbine drivetrain test facility located at the Clemson University Restoration Institute (CURI) campus on the former U.S. DOD Naval Base in North Charleston, SC. Clemson's experience and expertise at the Clemson University International Center for Automotive Research (CU-ICAR), where dynamometer test facilities have been designed, built, and operated for the automotive industry, makes it well-equipped to establish this test facility. Moreover, CURI operates materials testing facilities at the Naval Base that will provide analytical support for the test facility. The site will be designed to serve the wind industry's current and future needs in large wind turbine drive train testing. The facility will also serve as platform for research, education, and workforce training.

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The test facility will serve as the catalyst to establish a wind energy manufacturing cluster at the former Naval Base to bring economic development to the area. As you know, South Carolina's offshore wind potential has been documented by AWS Truewind and reported by the Department of Energy. Three of the most important cost drivers in developing an offshore wind

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farm include strong wind resources in shallow waters, access to good port facilities, and a large coastal demand center. According to your agency, South Carolina possesses excellent offshore wind resources close to its growing coastal demand centers in shallow waters near outstanding port facilities like Charleston and Georgetown. As the offshore wind market emerges along the East Coast of the United States and land-based turbines continue to grow in size, South Carolina is strategically positioned to serve as an industrial hub from this growing industry.

I hope you will give this project your serious consideration. Please do not hesitate to contact Brad Hamlett (brad.hamlett@mail.house.gov) or Garth Van Meter (garth.vanmeter@mail.house.gov) with Rep. Inglis' office (202-225-6030) if we can be of further assistance in this matter.

Best regards,

Bob Inglis

CC:
Mr. Steven Chalk
Principal Deputy Assistant Secretary
Energy Efficiency and Renewable Energy

Ms. Sara Wilson
Contracting Officer
Golden Field Office

BI/bh